At the suggestion of du Bois-Reymond the author undertook an investigation of the phenomenon. After excluding more or less completely by experiment or well known physical principles the possibility of the sensation being due to the dampness of the gas, its conductivity, its heat capacity, its absorbent power, its setting free heat in its absorption in the moisture of the tissues of the skin and its causing an elevation of the skin temperature by dilation of the small blood-vessels, he concludes that it is really due to an actual chemical stimulation by the gas of the nerves of warm sensation.

Thermische Experimente an der Küchenschabe (Periplaneta orientalis). V. GRABER. Arch. f. d. ges. Physiol. XLI, abstract by Hermann in Jahresb. Anat. u. Physiol. Bd. XVI, Abth. 2, 1888.

The limits of temperature fatal to these roaches are —6° C. and 41°. With decreasing temperature, at about 5°, they lose locomotion and, if they remain at that temperature, other power of motion also. They will still respond, however, to strong stimulation. Below 0° they soon become paralysed, but recover more or less perfectly when warmed again. At —5° or —6° they die in from 10 to 20 minutes. Increasing temperature makes them more lively; above 37° they go into convulsions, and die slowly at 41°, though for five minutes or less they can bear 60°. Graber tested the temperature preferences of these animals by an apparatus of three connecting chambers, the two outer ones of which were of variable temperature. If the side chambers were both high, say 38°, the insects all stayed in the middle one. If they differed by about 2° and were still high, most of the animals chose the cooler. If the side chambers were both cold, they picked the warmer. The roughness and conductivity of the floor were of great influence. The "optimum" or temperature of greatest preference was about 26° or 28°, but at this very point the animals were frequently uninfluenced in their choice by wide differences of temperature. When offered a very hot chamber and a very cold one, they preferred the hot one up to about 39°, or only went into the other for a little while to cool off. When the hot chamber was yet hotter, they preferred the cold, even if below zero. Strange to say, they did not in these experiments remain in the middle chamber.

Die räumliche und zeitliche Aufeinanderfolge reflectorisch contrahirter Muskeln. Dr. WARREN P. LOMBARD. Separat-Abzug aus Archiv f. Anat. u. Phys. 1885.

To know a reflex act one must know the muscular contractions that enter into it and their order and extent in space and time. Such an analysis Dr. Lombard made for the reflex contraction of the muscles of a frog's leg. He found that the reflex called out by a continuous heat-stimulation was not a continuous contraction, but one broken by periods of rest; also that the order of contraction of the muscles in a series of reflexes was not constant; that, other things being equal, the number of muscles excited, and the length of time required for the stimulus to spread to all the motor roots, varied with the kind and intensity of the stimulus. From these he concludes that there must be somewhere in the central portion of the centripetal-centrifugal arc an apparatus that holds back the